IDEM SPR, SMR, and SMR-F Medium Duty Non-Contact Magnetic Safety Switches

SPR Series Plastic Housing
SMR Series Stainless Steel Housing
SMR-F Series Stainless Steel Housing Rear Mount

Actuator Operating Direction

- Universal housing - 22mm fixing footprint suitable for most general applications; 50 mm wide body
- Withstands environments where high humidity or hose down is required.
- Wide 12 mm sensing, high tolerance to misalignment
- Long life switching capability - up to 1A
- Will operate with most safety relays
- Codes are not unique and can be used with other models of the same series
- Available with 2m, 5m, or 10m cable or 250mm pigtail with quick-disconnect cable

SMR Series, SMR-F Only
- Specifically designed for food processing applications
- Suitable for CIP SIP cleaning - Food Splash Zones per EHEDG guidelines
- 316 Stainless steel mirror polished finish
- Can be high-pressure hosed at high temperature - IP69K rated

SMR-F Only
- Same as SMR series, but with no-food-trap housing - rear mounting holes
- 5m cable only

See Dimensions later in this section.

### SPR, SMR, and SMR-F Non-Contact Magnetic Safety Switches

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Price</th>
<th>Body Material</th>
<th>Cable Length</th>
<th>Circuits</th>
<th>Contact Type / Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPR-111013</td>
<td>$103.00</td>
<td>Plastic</td>
<td>2m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPR-111014</td>
<td>$110.00</td>
<td>Plastic</td>
<td>5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPR-111015</td>
<td>$124.00</td>
<td>Plastic</td>
<td>10m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMR-139013</td>
<td>$139.00</td>
<td>Stainless steel</td>
<td>2m</td>
<td>2 NC, 1 NO</td>
<td>Medium duty / 1A</td>
</tr>
<tr>
<td>SMR-139014</td>
<td>$146.00</td>
<td>Stainless steel</td>
<td>5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMR-139015</td>
<td>$160.00</td>
<td>Stainless steel</td>
<td>10m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMR-F-137014</td>
<td>$146.00</td>
<td>Stainless steel</td>
<td>5m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Quick Disconnect Versions (M12 8-pin)**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Price</th>
<th>Description</th>
<th>Exit Type/Cable Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPR-111016</td>
<td>$130.00</td>
<td>Female QD Lead</td>
<td>M12 Female 5m, 8-pin</td>
</tr>
<tr>
<td>SMR-139016</td>
<td>$170.00</td>
<td>Female QD Lead</td>
<td>M12 Female 10m, 8-pin</td>
</tr>
</tbody>
</table>

### Female Quick Disconnect Lead

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Price</th>
<th>Description</th>
<th>Exit Type/Cable Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>140101</td>
<td>$33.00</td>
<td>Female QD Lead</td>
<td>M12 Female 5m, 8-pin</td>
</tr>
<tr>
<td>140102</td>
<td>$52.00</td>
<td>Female QD Lead</td>
<td>M12 Female 10m, 8-pin</td>
</tr>
</tbody>
</table>
IDEM SPR, SMR, and SMR-F Medium Duty Non-Contact Magnetic Safety Switches

Dimensions

mm [inch]

SPR Series

Pigtail

Quick Disconnect
IDEM SPR, SMR, and SMR-F Medium Duty Non-Contact Magnetic Safety Switches

Dimensions

mm [inch]

SPR Series

Pigtail

Quick Disconnect

See our website: www.AutomationDirect.com for complete Engineering drawings.
IDEM SPR, SMR, and SMR-F Medium Duty Non-Contact Magnetic Safety Switches

Dimensions

mm [inch]

SMR Series

Pigtail

For the latest prices, please check AutomationDirect.com.
Magnetic Switches - Electrical Connections

### Magnetic Switches - Electrical Connections

<table>
<thead>
<tr>
<th>Quick Disconnect Connector Pin Out</th>
<th>Lead Color</th>
<th>Type of Circuit (Actuator Present)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Yellow</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
<td>NO</td>
</tr>
<tr>
<td>7</td>
<td>Black</td>
<td>NC2</td>
</tr>
<tr>
<td>1</td>
<td>White</td>
<td>NC2</td>
</tr>
<tr>
<td>2</td>
<td>Red</td>
<td>NC1</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>NC1</td>
</tr>
</tbody>
</table>

### Coded Magnetic and RFID Switches - Electrical Connections

<table>
<thead>
<tr>
<th>Quick Disconnect Connector Pin Out</th>
<th>Lead Color</th>
<th>Type of Circuit (Actuator Present)</th>
<th>Output Types (Solid State)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Orange</td>
<td>Auxiliary (NO)</td>
<td>200 mA max. 24 VDC</td>
</tr>
<tr>
<td>5</td>
<td>Brown</td>
<td>Auxiliary (NO)</td>
<td>200 mA max. 24 VDC (Optocoupler)</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>NC2 +</td>
<td>200 mA max. 24 VDC (Optocoupler)</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
<td>NC2 -</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Black</td>
<td>NC1 +</td>
<td>200 mA max. 24 VDC (Optocoupler)</td>
</tr>
<tr>
<td>1</td>
<td>White</td>
<td>NC1 -</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Red</td>
<td>Supply +24 VDC</td>
<td>Supply 24 VDC +10% / -15%</td>
</tr>
<tr>
<td>3</td>
<td>Blue</td>
<td>Supply 0VDC</td>
<td></td>
</tr>
</tbody>
</table>

**Connection Colors**

Pin View from Switch

M12 Male
# IDEM Non-Contact Safety Switches Specifications

## Non-Contact Safety Switches Specifications

<table>
<thead>
<tr>
<th>Safety Classification and Reliability Data</th>
<th>Non-Contact Magnetic Switches</th>
<th>Non-Contact Coded Magnetic Switches</th>
<th>Non-Contact RFID Coded Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Classification and Reliability Data</td>
<td>3.3 x 10^6 operations at 100 mA load</td>
<td>No mechanical parts implemented</td>
<td>ISO 13849-1 up to category 4 with safety relay</td>
</tr>
<tr>
<td>ISO 13849-1</td>
<td>Up to category 4 with safety relay</td>
<td></td>
<td>ISO 13849-1 up to PLe depending upon system architecture</td>
</tr>
<tr>
<td>EN 62061</td>
<td>Up to SIL3 depending upon system architecture</td>
<td></td>
<td>Safety Data - Annual Usage</td>
</tr>
<tr>
<td>PFHD</td>
<td>2.8 x 10^{-10}</td>
<td>2.6 x 10^{-10}</td>
<td>4.77 x 10^{-10}</td>
</tr>
<tr>
<td>Proof Test Interval (Life)</td>
<td>8 cycles per hour / 24 hours per day / 365 days</td>
<td></td>
<td>100 years</td>
</tr>
<tr>
<td>MTTFD</td>
<td>20 Years</td>
<td></td>
<td>1100 years</td>
</tr>
<tr>
<td>Agency Approvals</td>
<td>CE, cULus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Electrical and General Specifications

### Contact Ratings: Safety Contact NC
- MPR: Voltage free: 250 VAC, 0.5 A Max.
- LPR, LMR, SPR, SMR, SPR-F, Voltage free: 250 VAC, 1.0 A Max.
- CPR, CMR, CMR-F, CPR-F: Voltage free: 250 VAC, 2.0 A Max.
- CPR, WPR: Voltage free: 24 VDC, 0.2 A Max.

### Contact Ratings: Monitoring (Auxiliary) Contact NO
- Voltage free: 24 VDC, 0.2 A Max.

### Recommended Fuses (NC Circuits)
- MPR: Fuse externally 0.4 A (F)
- LPR, LMR, SPR, SMR, SPR-F, CMR, CMR-F: Fuse externally 0.8 A (F)
- CPR, WPR: Fuse externally 1.6 A (F)

### Contact Release Time
- <2 ms

### Initial Contact Resistance
- <500 milliohm

### Minimum Switched Current
- 10 VDC, 1mA

### Dielectric Withstand
- 250 VAC

### Insulation Resistance
- 100 MΩ

### Recommended Setting Gap
- 5 mm

### NC Switching Distance
- SaO (assured ON) 8 mm close; SaR (assured OFF) 20 mm open

### NC Switching Operation
- For all switches the NC circuits are closed when the guard is closed and the actuator is present.

### NO Switching Operation
- Opens before NC circuits close

### Tolerance to Misalignment
- 5 mm in any direction from 5 mm setting gap (See Misalignment Range drawing on this page)

### Switching Frequency
- 1.0 Hz Max.

### Approach Speed
- 200 mm per minute to 1000 mm per second

### Body Material - Polyester
- CPR, LPR, MPR, SPR, WPR

### Body Material - 316 Stainless Steel
- CPR, CMR-F, LMR, SMR, SMR-F

### Operating Temperature Range
- Polyester: -25° to +80°C (-13° to +176° F)
- 316 Stainless Steel: -25° to +105°C (-13° to +221° F)

### Storage Temperature (Low)
- -55° to -40°C (-67° to -40° F)

### Enclosure Protection
- IP67, IP69K

### Shock Resistance
- IEC 66-2-7: 11 ms 30g

### Vibration Resistance
- IEC 66-2-6: 10-55 Hz 1mm

### Cable Type
- PVC, 6.5 mm outside diameter max.

### Mounting Bolts (recommended)
- 2 x M4; Tightening torque: 1.0 Nm

Note: Always mount onto non-Ferrous materials.

---

**For the latest prices, please check AutomationDirect.com.**

---

**tESC-140 Safety Electrical Components**
Safety Products

Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors’ products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for application and applying them, and therefore assumes all risks, and accepts full and complete responsibility and suitability of the product for their respective application.

does not provide design or consulting services, and cannot advise whether any
in or use of our products would ensure compliance with the safety requirements for any application.